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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,467	10/03/2007	Yusuke Igarashi	14225-111US1 F1040900US00	6707
7590 06/09/2009 FISH & RICHARDSON P.C. Citigroup Center 153 East 53rd Street, 52nd Floor New York, NY 10022-4611			EXAMINER PATEL, ISHWARBHAI B	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 06/09/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,467	<b>Applicant(s)</b> IGARASHI ET AL.	
	<b>Examiner</b> Ishwar (I. B.) Patel	<b>Art Unit</b> 2841	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1,3 and 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/1/06, 6/19/08, 10/2/08</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of group I, specie II, claims 2, 4 and 5 in the reply filed on April 14, 2009 is acknowledged.

### ***Drawings***

2. Figures 10A-10B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross-hatched. The cross-hatching patterns should be selected from those shown on page 600-114/115 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP § 608.02.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Priority***

4. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on February 24, 2004. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsunoda (US Patent NO. 5,384,683).

Regarding claim 2, Takeuchi in figure 1A-1B discloses circuit device comprising: conductive patterns (35 and 3) formed on a front surface of a circuit substrate (see figure); and circuit elements (5, 4) electrically connected to the conductive patterns; wherein the conductive patterns include a first conductive pattern (35) and a second conductive pattern (3) formed more thickly (see figure, thick with element 9) than the first conductive pattern, and back surfaces of the first and second conductive patterns are placed at substantially equal levels (see figure), and a protruding portion (9) is provided on a front surface of the second conductive pattern, the protruding portion protruding, in a thickness direction, from a front surface of the first conductive pattern (see figure).

Regarding claim 4, Tsunoda further discloses an edge portion having a thickness substantially equal to that of the first conductive pattern is formed around the protruding portion (see figure).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 4 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi (US Patent No. 6,718,631) in view of Nakamura (US Patent Application No. 2003/0141596).

Regarding claim 2, Takeuchi in figure 7 discloses circuit device comprising: conductive patterns (71, 72) formed on a front surface of a circuit substrate (see figure); wherein the conductive patterns include a first conductive pattern (72) and a second conductive pattern (71) formed more thickly than the first conductive pattern, and back surfaces of the first and second conductive patterns are placed at substantially equal levels (see figure), and a protruding portion (protruding portion on pattern 71, see figure) is provided on a front surface of the second conductive pattern, the protruding portion protruding, in a thickness direction, from a front surface of the first conductive pattern (see figure).

Takeuchi does not disclose circuit elements electrically connected to the conductive patterns.

However, circuit elements electrically connected to the conductive pattern is old and known in the art for the desired interconnection of the circuit elements.

Nakamura in figure 22 discloses a structure with circuit element (2) connected to conductive patterns.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the board of Takeuchi with circuit elements electrically connected to the conductive patterns, as taught by Nakamura, in order to have desired interconnection of the circuit elements for the functionality of the device.

Regarding claim 4, Takeuchi further discloses an edge portion having a thickness substantially equal to that of the first conductive pattern is formed around the protruding portion (see figure).

Regarding claim 5, Takeuchi discloses all the features of the claimed invention as applied to claim 4 above, but does not explicitly disclose a width of the edge portion is larger than the thickness of the first conductive pattern. However, the width of the edge portion will depend upon the process of manufacturing the pattern and thickness of the pattern. As shown in figure 2f and 2g of Takeuchi, if the width of the edge is small, the etching may reduce the size of the protruding portion.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the modified board of Takeuchi with a width of the edge portion is larger than the thickness of the first conductive pattern, in order to have desired size of the protruding portion.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Appelt (US Patent No. 6,222,136) in figure 2i discloses a board with first conductive pattern (32) and a second conductive pattern (12) formed more thickly than the first conductive pattern.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272 1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp  
June 7, 2009

/Ishwar (I. B.) Patel/  
Primary Examiner, Art Unit 2841